Chapter 2 Planning Process

Disaster Mitigation Act of 2000

§201.4(b): An effective planning process is essential in developing and maintaining a good plan. The mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups, and be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives.

§201.4(c)(1): Description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated

2.1 *Introduction*

It must be noted that existing programs, statutes and polices of state agencies were reviewed in the early stages of plan development and remained in the background throughout the planning process. Emergency Management Plans have traditionally been directed by requirements of the Stafford Act with respect to Mitigation Planning. The short time frame allotted for development and approval of the plan prior to November 1, 2004 meant that the state plan must focus on mitigation of state agency facilities from natural hazards. This approach focused the planning process to specific facilities and mitigation of those facilities.

Therefore, the final *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* does not attempt to fully integrate ongoing state and local programs into the mitigation goals, objectives, strategies and projects listed herein. The Mitigation Strategy presented in Chapter 4 was developed to address state agency structural, educational, policy and information development deficiencies identified through the hazard identification and risk analysis process described in Chapter 3.

Since many of the Commonwealth's state and local programs, policies and statutes address natural hazards, they are listed in this plan to provide background on institutional, comprehensive approaches to natural hazards mitigation that have been present in Commonwealth programs prior to the 2000 Stafford Act revision. These programs are relevant and contribute significantly to reduced impacts from natural hazards.

The 2007 revision of *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* will include a HIRA and vulnerability assessment that reflects local HIRAs. The new plan will incorporate human-caused hazards and will address the highest priorities listed in 28 local and regional hazard mitigation plans currently under development. In development of the 2007 plan process, which will begin during 2006, full analysis of federal, state and local program statutes, plans and policies will ensue to determine relevant programs to the state hazard mitigation planning process. This will be done in the context to fully integrate, not duplicate those programs that support state hazard mitigation priorities.

2.2 *Overview of the Planning Process*

The planning process for the Commonwealth of Virginia Hazard Mitigation Plan was initiated by the first meeting of the State Steering Committee on July 28, 2003. At that meeting, the federal rule requirements were explained to state and federal agency stakeholders as well as representatives of private non-profit organizations that were in attendance. The original planning process involved three sub-committees that would essentially develop the plan. These committees were charged with the three major planning tasks that comprise development of a hazard mitigation plan:

A. Identify Hazards and Risks
B. Perform a Vulnerability Assessment
C. Develop Mitigation Strategies to Address Reduction of Potential Damages

Seven weeks following the organization of the stakeholders into these three sub-committees, the Commonwealth was struck by the largest natural disaster since settlement – Hurricane Isabel. This major storm entered the Commonwealth on September 18, 2003. Damages resulted in inclusion of 100 jurisdictions in the Presidential Disaster declaration DR-1491-VA. More than 93,000 Virginia households, individuals and businesses registered for disaster assistance. Damages were incurred from hurricane tidal surge, high winds, flooding and tornadic activity. To date, nearly $2 Billion in damages resulted from the storm.

Obviously, Hurricane Isabel derailed the planned hazard mitigation planning process as VDEM and other state agencies scrambled to provide response, recovery and mitigation to the citizens of the Commonwealth. Key VDEM, DCR, and other state staff were deployed to the FEMA-Commonwealth Disaster Field Office, in operation from September 22, 2003 through January 30, 2004. Since up to 7% of Hurricane Isabel HMGP funds could be directed to support development of state and local §322 hazard mitigation plans, a decision was made to contract the hazard and risk identification, vulnerability assessment and probable loss prediction functions to the Virginia Tech Center for Geospatial Information Technology.

As the Center developed databases connected to GIS mapping throughout the fall of 2003 and the winter of 2004, the planning process was amended to guide the Steering Committee through a participative planning process that would be conducted during the three remaining Steering Committee meetings with individual participation through web-based project data entry, strategy and project ranking and plan draft review. Continued development of an inventory of state facilities, analysis of the recorded history of impacts from damage due to natural hazards and synthesis of GIS layers for wildfire, special flood hazard areas, earthquake zones, karst topography and tornado occurrence led to prediction of probability for incurred damages to state facilities from identified natural hazards. The planning process continued to evolve to ensure comprehensive agency responses as data was being developed and analyzed. The Steering Committee Meetings may be summarized as follows:

First Meeting: Introduction of Section 322 requirements and the state planning process
Establishment of three Sub-committees:
- Hazard and Risk Identification
- Vulnerability Assessment
- Mitigation

Second Meeting: Presentation and Hazard and Risk Analysis (HIRA)

Re-delineation of Sub-committees to determine state goals and objectives:

- Structural Mitigation Projects Sub-committee
- Policy, Planning & Funding Sub-committee
- Data Development Sub-committee
- Education Sub-committee

Third Meeting: Final Presentation of HIRA and Loss Analysis
Refinement of Sub-committee Goals and Objectives
Development of Project Prioritization Criteria
Instruction on Project Data Entry via web site

Fourth Meeting: Introduction to the Plan draft and instructions for review
Project Prioritization Procedures via web site
Schedule for final plan review and submission
Organization of Permanent Advisory Sub-Committees

- Project Advisors
- Planning, Policy & Funding
- Mitigation Database Expansion and Refinement
- Assessment of Human-caused Hazards

2.3 *Stakeholder Involvement*

The involvement of stakeholders in plan development was considered a vital element to success in development of a FEMA-approvable plan. Since the plan was primarily targeted to provide a mitigation strategy for Commonwealth of Virginia-owned facilities, stakeholders were sought from state agencies, colleges and universities. State agency stakeholders were joined by key federal agency partners and private non-profit organizations. This holistic participation was necessary for the plan to evolve into a true ongoing mitigation movement across the Commonwealth as opposed to the traditional planning "shelf" document. Stakeholders evolved into Steering committee members who provided critical input to the planning process, including sharing of inventories of state facilities, database layers identifying wildfire risk to structures located in woodlands, Special Flood Hazard Areas, earthquake fault zones, karst limestone topography (caves and sinkholes), winter storms and tornados. The participants crafted a vision and four hazard mitigation goals which provide the framework of the Mitigation Plan (Chapter 4). Supporting objectives were outlined and refined to support each of the four mitigation goals. Hundreds of projects and strategies to support objectives were entered into a web-based database. Each project was then ranked based on established criteria to enable prioritization of strategies and projects into categories of "critical," "high," "medium' and "low." Finally, Steering Committee members will continue the work on a ad hoc basis through the establishment of standing sub-committees during the final steering committee. These sub-committees will advise VDEM in critical areas and functions of Mitigation Planning that will not only facilitate implementation of the 2004 Commonwealth Hazard Mitigation Plan but will enable comprehensive revision of the plan within the three year planning cycle outline within the federal rule.

2.4 *Agency Contacts*

Federal regulations require that planning process participants represent a cross-section of relevant state and federal agencies as well as organizations. A diverse group of stakeholders were invited from the beginning of the planning process during the summer

of 2003 to attend the first Steering Committee meeting. These agency representatives brought expertise and concerns for natural resources, weather forecasting, data and GIS development, hydrology, emergency services, transportation, health, public safety and higher education. Private non-profit interests, especially the American Red Cross and Volunteer Agencies (VOLAG) were invited as well. Following the first Steering Committee meeting, staff made individual contacts to specific agencies and organizations to solicit data sharing and to invite participations. Each state agency director and college or university president within the Commonwealth of Virginia was invited to the second and third Steering Committee meetings, which significantly diversified agency participation. Along with federal agency partners and non-profit organization cooperators, the broad geographic and technical expertise represented by these participants allowed the Commonwealth to develop a representative, collaborative mitigation plan.

More than 160 representatives participated through attendance at one, two, three or all of the Steering Committee meetings, provided integral data, participated in sub-committees, entered projects or strategies into the database or provide technical review to the plan draft. Participation was both active and passive, but even telephone discussions or email messages added to the comprehensiveness of the HIRA and development of the Mitigation Goals, Objectives and Strategies & Projects.

2.5 *Steering Committee Meetings*

Virginia mitigation stakeholders participated in a series of four meetings in Richmond, the state capital during the course of the one-year planning effort. These meetings provided a forum for discussion on hazard identification and assessment methods for a variety of hazards. In addition, as the process evolved, stakeholders, Department of Emergency Management staff and the consulting universities developed a participatory planning process. A full description of each of the four Steering Committee meetings follows:

2.5.1 July 26, 2003 Steering Committee Meeting

The first Steering Committee meeting was conducted in July, 2003. The requirements of section 322 of the 2000 Stafford Act were presented to state and federal agencies in attendance along with several large non-profit organizations that participate in emergency response and recovery. The participants were divided into three sub-committees that were intended to develop the plan. The sub-committees were:

- Hazard and Risk Identification
- Vulnerability Assessment
- Mitigation Strategies

It was intended that the Hazard and Risk Identification sub-committee, with VDEM staff support, would perform the hazard and risk analysis during the fall of 2003. This data would be fed to the Vulnerability Assessment sub-committee, that would assign state agency facilities a vulnerability ranking based on the facility's exposure to natural hazards. Finally, the Mitigation Strategies sub-committee would develop mitigation strategies and projects responsive to vulnerabilities identified by the other two subcommittees.

In retrospect, this planning process was inherently flawed since a group of agency representatives did not have the central data assimilation capability to perform hazard

and risk identification as well as a vulnerability synthesis. VDEM at the time did not have the staff expertise or capability to adequately support the subcommittees in these tasks.

The planning programmatic deficiencies were becoming evident by September, 2003. Hurricane Isabel devastated the Commonwealth on September 18, 2004, resulting in a federal disaster declaration that encompassed 70 counties and 30 cities. As VDEM Mitigation Program resources were directed to address Isabel recovery, it became evident that development of an "in-house" plan supported by sub-commitees of agency and organization partners was not practical. The Virginia Tech Center for Geospatial Information Technology was contracted to develop the HIRA during late fall, 2003.

2.5.2 February 26, 2004 Steering Committee Meeting

The hazard identification and risk assessment was the focus of the second meeting, held within one month of closure of the Hurricane Isabel Disaster Field Office. A preliminary Hazard and Risk Analysis, with agency-specific vulnerability assessment was provided to those participating. Discussion was lively as participants began to understand the scope of Commonwealth vulnerability to common hazards such as flood and winter storm. In addition, it became evident that the nearly 12,000 state structures and facilities dispersed throughout the Commonwealth are exposed to tornado, earth quake, land subsidence, severe storms and hurricane.

It became clear that the previously designated Mitigation Strategies Sub-committee could not fully address the results of the HIRA and vulnerability analysis. Therefore, the sub-committee structure was reconfigured to the following subcommittees:

- Structural Mitigation Projects Sub-committee
- Policy, Planning & Funding Sub-committee
- Data Development Sub-committee
- Education Sub-committee

The sub-committees formed during this meeting. They began to develop a sub-committee mitigation goal and supporting objectives, which were refined during the next six weeks. In addition, work to edit and complete the HIRA and vulnerability assessment continued.

2.5.3 May 26, 2004 Steering Committee Meeting

The University of Virginia Institute for Environmental Negotiation joined the plan development effort at the third steering committee meeting. The final results of the hazard identification and risk analysis were presented, along with the vulnerability assessment for all state agency facilities. With assistance from the Institute for Environmental Negotiation, the sub-committees met and refined their goals and objectives. The four mitigation goals, which address planning & policy; information and data needs; mitigation education; and structural mitigation projects were solidified at this meeting. Discussion of project and strategy needs occurred during the sub-committee meetings. Prior to this meeting, state agencies had not developed specific mitigation projects or strategies. To ease this process and to encourage projects and strategies that would support a specific mitigation goal and objective, an on-line system had been developed for mitigation and project strategy data entry. The on-line system was introduced at the meeting and was operational immediately following the meeting. It allowed state agencies to enter mitigation project/strategy summaries that specifically addressed mitigation objectives.

2.5.4 July 19, 2004 Steering Committee Meeting

Project data entry continued from May 26 through July 10. Nearly 100 projects were developed using the Mitigation web site during this period. The draft *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* was written and distributed to all agencies, organizations and individuals that have participated in the hazard mitigation planning process since its inception in July, 2003.

The fourth and final Steering Committee Meeting focused on plan review and implementation. A ranking system was introduced that would allow steering committee members to use the Mitigation website to rank projects using priorities developed by each sub-committee during the May meeting.

In addition, the steering committee was challenged to begin to explore refinements that would be necessary for plan revision in 2007 to incorporate the results of 28 local and regional mitigation plans. The 2007 plan must also address human-caused hazards. To this end, while the four goal groups reflected in Chapter 4 of this plan mirror those developed by the sub-committees to date, the sub-committees were re-configured slightly to better accommodate plan implementation and refinement. The new Virginia Mitigation Sub-Committees established on July 19, 2004 are:

- Project Advisors
- Planning, Policy & Funding
- Mitigation Database Expansion and Refinement
- Assessment of Human-caused Hazards

These new sub-committees met during the July 19 meeting, assisted by Institute of Environmental Negotiation facilitators. They determined leadership, method of communication and a schedule for meeting during the next 18 months.

2.6 *Additional Workgroup Meetings*

Following the first Steering Committee meeting, the Mitigation Sub-committee met to develop a survey method to gather data regarding existing Commonwealth and other grant programs that might be available to fund mitigation projects. The group developed a survey format that was digitally conveyed to sub-committee members in late August, 2003. The data gather was used to develop a “test” web-based grants database that remains in development. It is anticipated that this database will evolve by late 2004 into a useful tool for those seeking funding beyond traditional FEMA grant programs to support implementation of the strategies and projects included in the Mitigation Plan.

2.7 *Agency Contacts and Interviews*

Throughout the planning process additional resources were identified for information to support development of the hazard identification and risk assessment. Meetings were conducted with agency officials contributing information and data to the process. Telephone interviews and email correspondence were also used to supplement meetings.

In addition, agency profiles were developed through a web-based survey. These profiles were completed by agency stakeholders and characterize their agency's role in mitigation planning.

The complete agency profiles can be found in Appendix D.

2.8 *Planning Efforts by State and Local Agencies*

Local jurisdictions in Virginia address some hazards in the planning and development process, primarily through the building code, which includes provisions requiring new buildings and structures to be designed to resist certain flood, wind, snow, and seismic loads. The Uniform Statewide Building Code has very specific provisions addressing fire hazards and the safety of occupants.

In the preparation of a comprehensive plan, the local planning commission is required to survey and study such matters as the use and preservation of land, characteristics and conditions of existing development, natural resources, surface water, geologic factors, environmental and economic factors, existing public facilities, drainage, flood control and flood damage prevention measures, among others. (§15.2.2224,*Code of Virginia*).

Comprehensive plans and ordinances for zoning and subdivisions must explicitly address flood hazards and geologic information (§15.2.223 et seq. *Code of Virginia*). Cities and counties in the coastal zone also must address coastal management issues such as erosion. Hazards that are not specifically addressed include: non-building aspects of severe winter storms, landslides, forest/urban interface and wildfire, and dam-break hazards.

It must be noted that existing programs, statutes and polices of state agencies were reviewed in the early stages of plan development and remained in the background throughout the planning process. However, the final *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* does not attempt to fully integrate these ongoing state and local programs into the mitigation goals, objectives, strategies and projects. The Mitigation Strategy presented in Chapter 4 was developed to address state agency structural, educational, policy and information development deficiencies identified through the hazard identification and risk analysis process described in Chapter 3.

Since many of the Commonwealth's state and local programs, policies and statutes address natural hazards, they are listed in this plan to provide background on institutional, comprehensive approaches to natural hazards mitigation that have been present in Commonwealth programs prior to the 2000 Stafford Act revision. These programs are relevant and contribute significantly to reduced impacts from natural hazards.

2.8.1 Local Planning and Development

With respect to addressing natural hazards, local jurisdictions control land use through plans, ordinances and codes. These programs are enabled through state law and regulation and like the many state programs described in this chapter, contribute significantly to mitigation of natural hazards. These programs were not directly considered during development of the final *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* because the plan primarily addresses state facilities determined to be at risk following analysis of vulnerability of state facilities to natural hazards. However, these efforts are extremely relevant as state agencies generally manage state facilities in a manner that is consistent and complementary of local

comprehensive planning and zoning. State–sponsored construction adheres to the International Building Code, 2000, which has also been adopted for local use. In general, the following local activities reflect local approaches to hazard mitigation prior to Virginia local governments addressing natural hazards through development of local and regional all-hazards plans. Local §322 planning is addressed in Chapter 5 of this document.

- **Comprehensive Plans** are prepared by local planning commissions and address the physical development of land within a jurisdiction's boundaries. The comprehensive plan "shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants" (§15.2-2223, *Code of Virginia*). Most plans evaluate and provide guidance for both land uses and the environment. Residential, business, industrial, agricultural, parks and open space, public land, floodplains, transportation corridors, community facilities, historical districts and areas targeted for redevelopment are all addressed within the plan. Also included are demographic trends such as population densities and information on the age and quality of the housing stock
- **Zoning Ordinances** are for the general purpose of promoting the health, safety or general welfare of the public. Some consideration to the following should be given within each zoning district, where applicable:
  - adequate light, air, convenience of access, and safety from fire, flood, crime and other dangers;
  - the provision of adequate police and fire protection, disaster evacuation, water, sewerage, flood protection, and other public requirements; and
  - protection against loss of life, health, or property from fire, flood, panic or other dangers (§15.2-2283, *Code of Virginia*).
- **Land Subdivision and Development Ordinances** are prescribed by statute and provide restrictions for plats, utilities, and streets, and address flood control, drainage, and other regulations that control the density and use of the land. (§15.2-2241, *Code of Virginia*).
- **2000 International Building Code** includes provisions related to wind hazards, snow loads, seismic risk flood hazards, and structural fire hazards. The 2000 International Building Code was adopted October 1, 2003 and supersedes local building codes and regulations. [§36-98, *Code of Virginia].* The code has been cross-walked with the National Flood Insurance Program regulations and is consistent with local floodplain ordinances.
- **Floodplain Management**, in addition to the provisions of the building code, has typically been addressed by stand-alone ordinances adopted for voluntary participation in the National Flood Insurance Program. Revised floodplain ordinance provisions recently have been incorporated into comprehensive zoning ordinances when localities revise or re-codify zoning ordinances.

2.8.2 Emergency Response and Recovery

Response to natural hazard events is coordinated through local emergency management agencies. Most local agencies are responsible for preparing for and training to respond to disasters, whether natural or technological in origin. Recovery, especially from major events, may involve other local agencies, such as housing, water/wastewater, and parks

and recreation. Local agencies prepare local emergency management plans that direct their response and recovery operations.

2.9 *State Agencies*

Key word searches of the *Code of Virginia* were conducted (**http://leg1.state.va.us/000/src.htm**). The purpose of the search was to identify statutes that may influence how hazards are currently addressed, and how existing programs and authorities affect hazard mitigation. Key word searches are not intended to be exhaustive, but to suggest areas for further examination. The key words used in this search were:

- building code
- coastal erosion
- dam failure; dam safety
- disaster
- earthquake
- emergency management
- flood; floodplain
- forest fire
- growth management
- hail
- hazard
- hurricane
- infrastructure
- landslide
- land use
- public land
- seismic
- slope failure
- steep slope
- subsidence
- tornado
- utilities
- wind
- zoning

In order to summarize how various state agencies address hazards in their on-going activities, a set of questions was distributed to the Committee members. Each member was interviewed about agency authorities, responsibilities, programs and functions. Table 2-1 summarizes the methods that agencies use to influence new development, public buildings and infrastructure, existing development, and public information. Brief agency profiles (see Appendix D) were developed to summarize:

- Agency and contact information;
- Description and mission; and
- Existing programs and mitigation roles.

MITIGATION FUNCTIONS	Agriculture & Consumer Services	Business Assistance	Chesapeake Bay Local Assistance	Commission on Local Government	Conservation & Recreation	Economic Development Partnership	Emergency Management	Environmental Quality	Forestry	Game & Inland Fish	General Services	Geographic Information Network	Health	Historic Resources	Housing & Community Development	Housing Development Authority	Labor & Industry	Marine Resources Commission	Mines Minerals & Energy	Planning & Budget	Rail & Public Transportation	Transportation	Treasury, Risk Management	VA Resources Authority	VA Municipal League/Assoc. of Counties	Local Jurisdictions	Planning District Commissions
INFLUENCE NEW PRIVATE DEVELOPMENT																											
Planning (e.g., land use, comprehensive, etc.)			◆						◆									◆	◆			◆				◆	◆
Regulations (e.g., permits, codes, standards)								◆					◆	◆	◆				◆			◆				◆	
Funding (e.g., for public infrastructure, housing)								◆					◆		◆	◆								◆			◆
INFLUENCE PUBLIC BUILDINGS, PUBLIC INFRASTRUCTURE																											
Standards for planning & construction of buildings											◆				◆			◆								◆	
Loss control/Insurance on buildings		◆																					◆		◆		
Standards for planning & construction of roads					◆													◆				◆					
Standards for planning & construction of infrastructure					◆			◆					◆		◆			◆			◆					◆	
INFLUENCE EXISTING DEVELOPMENT, REDEVELOPMENT, POST-DISASTER RECOVERY																											
Regulations (e.g., codes for existing building)								◆			◆		◆	◆	◆		◆									◆	
Planning (e.g., planning & project grants)					◆		◆		◆		◆		◆		◆											◆	◆
Funding/incentives (e.g., tax, subsidies, grants, loans)		◆			◆		◆		◆				◆		◆									◆			
Technical assistance	◆	◆			◆	◆	◆	◆	◆		◆	◆	◆	◆	◆		◆					◆				◆	◆
PUBLIC INFORMATION																											
Information (e.g., outreach, awareness)	◆	◆	◆	◆	◆	◆	◆	◆	◆			◆	◆	◆	◆		◆	◆	◆			◆		◆	◆	◆	◆

Table 2.1 Mitigation Planning Function, by Agency.

The section of each profile that summarizes existing programs and mitigation roles contains information regarding how hazards are addressed. For the most part, agency activities do not expressly address hazards; however, some programs address hazards tangently.

VDEM emphasized throughout this planning process that agencies should provide data and proposed and ongoing projects (discussed in Chapter 4 and listed in Appendix H) that come from existing programs and mitigation efforts for those agencies. The agencies and programs that most directly address hazards and mitigation include:

- **Department of Emergency Management.** VDEM's primary mission is to protect the lives and property of Virginia's citizens from emergencies and disasters by coordinating the state's emergency preparedness, mitigation, response and recovery efforts. It is the responsibility of VDEM to ensure a comprehensive, efficient and effective response to emergencies and disasters throughout Virginia, including provision of assistance in the absence of events for which federal aid is made available. VDEM is charged with supporting mitigation planning and administers the Hazard Mitigation Grant Program that provides grants to eligible entities to implement cost effective mitigation projects in the post-disaster period. VDEM and the Department of Conservation & Recreation coordinate the administration of FEMA's NFIP-funded Flood Mitigation Assistance Program. VDEM also leads the state and federal Public

Assistance Programs, which provide disaster assistance to state agencies, local jurisdictions, and certain private nonprofit entities to repair and restore damaged facilities. Damaged facilities must be repaired in a manner that is compliant with existing codes and standards. VDEM manages the National Weather Service's Integrated Flood Observing and Warning System (IFLOWS) in several western and southwestern counties. IFLOWS improves local flash flood warnings through a linked wide area monitoring and communications network. With other state agencies and local jurisdictions, VDEM coordinates hurricane evacuations, relying in part on information developed as part of the Hurricane Evacuation Study prepared by the U.S. Army Corps of Engineers with support from FEMA, VDEM, and the National Weather Service (VDEM, 1992).

- **Department of Conservation & Recreation.** DCR enhances natural and recreational resources through land management planning, funding, education and regulations. DCR is the State Coordinating Office for the National Flood Insurance Program, administers the dam safety program, and participates in interagency initiatives concerning coastal erosion. A number of DCR's programs have the potential to support certain flood mitigation projects: the Flood Prevention and Protection Assistance Fund helps local jurisdictions address problem areas. Some easement and other programs may support floodplain acquisition projects, including the Scenic Rivers Program, funding from the Virginia Outdoors Fund, the Conservation Reserve & Enhancement Program, and Best Management Practices implemented with Water Quality Improvement grants.
- **Department of Housing & Community Development (DHCD).** DHCD collaborates with communities to assist them in fully developing their economic potential, and to create a healthy, safe and affordable living environment. Three key aspects of DHCD's broad responsibilities merit particular attention: Several funding programs can support local mitigation measures, including the Community Development Block Grant program and other federally funded programs; the State Building Code Official provides technical assistance and interpretation to local governments; and after catastrophic disasters of regional proportions, DHCD coordinates the Long-Term Disaster Recovery Task Force.
- **Department of Forestry (DOF).** Virginia's program, one of the strongest in the nation, is responsible for 15 million acres of forestland, providing protection and management for forest fire, insects, and disease. DOF is directly responsible for suppression of forest fires and supports response to natural disasters. Full-time and part-time wildland firefighters are trained and qualified by DOF in fire control tactics and the Incident Command System. An emergency interagency response center is located in Charlottesville; two mobile command centers are available for rapid deployment. Funded by National Fire Plan grants, DOF has initiated statewide wildland fire risk assessments that will be maintained in a geographic information database system.
- **Virginia Resources Authority (VRA).** The VRA facilitates loans to support local infrastructure for projects concerning environmental quality, public health, transportation and economic development. VRA serves as a banking institution and has no funds of its own. Projects may involve expansion or construction of new facilities, which may be prompted by growth, or replacement/reconstruction of existing facilities. Relocation of facilities may be undertaken, as well as retrofitting or upgrading existing facilities to meet current standards.
- **Department of General Services (DGS).** DGS oversees the design and construction of state-owned buildings, applying the Virginia Uniform Statewide Building Code (USBC) provisions related to wind, seismic, snow, and flood loads. The *Governor's Executive Memorandum 2-97* designates DGS as the agency responsible for ensuring that state construction proposed in mapped

flood hazard areas complies with the NFIP. All proposals are processed as variances, and must be reviewed by DCR.

- **Virginia Department of Transportation.** VDOT is responsible for building, maintaining and operating the state's roads, bridges and tunnels, including the repairs and replacements required after natural disasters. In accordance with the requirements of the Federal Highway Administration, VDOT routinely factors flood hazards into the planning and design of transportation infrastructure, and seismic provisions are required in the southwestern portion of the state. Based on an evaluation of major bridges, seismic retrofit measures are not required throughout the rest of the state.
- **Risk Management Division, Department of Treasury.** The Risk Management Division maintains a blanket insurance policy to cover all state buildings. Each agency pays premiums based on their buildings and loss history. Specific coverage is provided for flood damage, which provides up to $500 million, with a deductible of $1 million for any single event (regardless of the number of impacted buildings). Coverage is provided for losses associated with seismic events.
- **Department of Mines, Minerals & Energy (DMME).** The DMME operates six divisions, which focus on the production of more than 30 different mineral resources such as coal, gas and oil, and non-petroleum minerals like rock and gravel. A primary goal of DMME is that these mining operations have no off-site effects such as increased flood hazards and slope failure potential. The State Geologist's office provides mapping and digital data to local jurisdictions to be included in local plans. Maps of steep slope areas, including areas where landslides have occurred, are available for some areas.
- **Department of Environmental Quality (DEQ).** As the lead agency for the Virginia Drought Monitoring Task Force, DEQ compiles Drought Status Reports using information from several state and federal agencies. The reports, which are distributed by VDEM, contain sections relating to current climatological conditions and situation reports regarding water supplies, water quality, forest fire risks and agriculture and crop reports.
- **Virginia Coastal Program.** The Department of Environmental Quality leads the networked Coastal Program and helps with the development and implementation of coordinated policies. DCR manages the Shoreline Erosion Advisory Service (SEAS), which advises shoreline property owners and coastal resources managers about shoreline erosion control and stabilization methods. The Virginia Marine Resources Commission regulates sand dune modifications; many local jurisdictions have adopted ordinances for sand dune protection and issue permits with the Marine Resources Commission in an oversight role. Virginia Institute of Marine Science provides technical and research support. The Board on Conservation and Development of Public Beaches provides for the conservation of tidal public beaches by allocating state-funded grants to local jurisdictions to conserve, protect, improve, maintain and develop public beaches and tidal shorelines.

2.9.1 Related State Plans and Documents

There are many state plans and documents related to mitigation planning in Virginia. Existing state plans and documents that most affect mitigation were reviewed in detail, and are summarized below.

Commonwealth of Virginia Emergency Operations Plan; Volume 6 Mitigation (2001) (Virginia Department of Emergency Management, 2001). This plan, developed primarily to meet federal regulatory requirements, was prepared using a traditional planning

process. A list of the "task assignments" was included in Section 5.3. A number of opportunities were identified and incorporated into this new Virginia *Hazard Mitigation Plan*. This plan replaced the 1993 plan.

High Priority Mitigation Actions - 2001

1. Make Available to Local Jurisdictions Information about Programs and Funding Mechanisms that May Support Mitigation Projects.

2. Foster Local Pre-Disaster Mitigation Planning.

3. Identify Existing and Potential Mitigation Projects; Seek Funding; Support Post-Disaster Repairs.

4. Increase Public Education and Awareness of Hazards and Mitigation.

5. Mitigate Damage and Losses at Local Public Buildings, School Buildings, and Water/Wastewater Treatment Facilities and Strengthen Ability to Continue Service.

6. Examine Measures to Help Reduce Power Outages During Disasters.

7. Protect State Investments in High Risk Areas.

Floodplain Management Plan for the Commonwealth of Virginia (1997) (Virginia Department of Conservation and Recreation). This document contains valuable information on flood hazards and risks, and defines the state's role in floodplain management. It contains a modest action agenda, which is reflective of concerns about reductions in program staff and resources in the early 1990s. A summary of the status of the action agenda set forth in the Plan was included in the plan. A review of the Plan, on file with VDEM and DCR, recommended that the *Floodplain Management Plan* form the technical basis for the flood-related actions set forth in this Hazard Mitigation Plan. However, delay of revision of the State *Floodplain Management Plan* precluded its use in developing the hazard and risk analysis for this plan. The State Floodplain Management Coordinator began revision of the plan during spring, 2004 with completion anticipated for December, 2004. It will adopted as an annex to the 2004 Mitigation Plan and will be used to inform future hazard and risk analysis for Mitigation Plan revisions.

Executive Memorandum 2-97, Floodplain Management for State Agencies (1997). Developed in the early 1990s and adopted after Hurricane Fran in 1996, this document is a clear statement of the Governor's intent that all state agencies have some responsibility in managing flood hazards and reducing their impacts through a series of different avoidance, promotion, and coordination activities. A summary review is on file with VDEM and DCR. As set forth in the Executive Memorandum, the Governor addresses important aspects of state performance:

- DCR is charged as the State Coordinating Office of the NFIP and the technical advisor on the viability of proposed flood mitigation projects;
- All State agencies engaged in construction or land disturbing activities are to comply with locally adopted floodplain management ordinances;

- New state buildings in flood hazard areas must be authorized by a variance obtained from the Director of the Department of General Services' Division of Engineering and Buildings in consultation with DCR; and
- The State Corporation Commission determines the adequacy of the Commonwealth's insurance with respect to potential flood damage.

All state agencies follow the directives listed above routinely. Therefore, the Executive Memorandum is considered state policy that must be followed by all state agencies. It represents ongoing mitigation efforts, not new initiatives, so is not further addressed by this plan.

Mitigation Strategies: Prepared by the Commonwealth and FEMA immediately following establishment of a Disaster Field Office to respond to each presidential declared disaster, the Mitigation Strategy focuses mitigation priorities specific to recovery from that disaster. In conjunction with the state's mitigation goals and vision statement, the Mitigation Strategy priorities are determined to support recovery operations for the specific disaster event. These priorities can include education, support of local officials in administration of floodplain ordinance requirements, targeted technical training and development of specific mitigation messages for affected residents, businesses and local governments. The Strategy outlines priorities for implementing Hazard Mitigation Grant Program funding that is determined as 7 ½% of eligible program expenditures for the disaster. Immediate recovery priorities are outlined to guide eligible HMGP applicants; these priorities are used to rank and select HMGP project applications.

2.9.2 Federal Agencies & Programs

The following list of federal programs is intended to focus on those that are most applicable to the hazards that have occurred recently in Virginia. After each declared disaster, federal resources that may support recovery are identified. Some federal programs can be accessed in an ongoing capacity to support local initiatives. More detailed information on these programs and others can be found in *Federal Programs Offering Flood Recovery and Floodplain Management Alternatives* (Office of Management and Budget, 1998) and *Economic Impact Assessment of Hurricane Floyd for Virginia* (EDA and FEMA, 2000). As with local and state programs, these programs were in the background of the development of this plan, but were not specifically integrated into the final *Virginia Hazard Mitigation Plan – Emergency Operations Plan, Volume 6* because the plan primarily addresses state facilities determined to be at risk following analysis of vulnerability of state facilities to natural hazards. As implementation of the plan ensues, every opportunity to integrate existing federal programs into hazard mitigation will be explored.

Federal Emergency Management Agency (FEMA). As the nation's emergency management agency, FEMA's programs focus mainly on supporting state and local initiatives that will reduce the impacts of disasters. The programs provide technical assistance, regulatory standards and financial assistance. Additional information is available online at **www.fema.gov**. Some programs are activated only after a disaster is declared; others are ongoing:

- **Hazard Mitigation Grant Program (HMGP).** The HMGP has become the most widely known grant program that provides grant funding to address at-risk development. While the program's primary emphasis has been to remove homes through acquisition or to elevate them above predicted flood levels, HMGP funds have also been used on a wide variety of projects to increase resistance to nearly all natural hazards. Since 1989, over $1.5 billion has been invested nationwide in mitigation through HMGP. Funds for this program

become available only after a disaster declaration; recipients must meet certain eligibility criteria; projects must also be feasible and cost effective. Many of the projects identified within the Structural Mitigation goal element of the plan could be funded through HMGP.

- **Response & Recovery – Public Assistance (PA).** Immediately following the declaration of a major disaster, FEMA and the state implement procedures to assess damage, to estimate the cost of restoration, and to allocate funds for recovery. The Public Assistance program focuses on restoration of certain non-profit and public buildings, public utility and transportation infrastructure and covers a portion of the costs to respond to and recover from the event. Under certain circumstances, mitigation measures can be factored into recovery of public buildings and facilities in order to minimize the potential for future losses from comparable events. Use of this program to strengthen structures impacted by disasters as part of the repair and recovery process will be pursued as disasters occur that provide federal Public Assistance funding for eligible structures. VDEM is responsible for coordinating response and recovery efforts with FEMA and local jurisdictions. Additional information is available on FEMA's website at **www.fema.gov/r-n-r/pa/index.htm**.
- **Response & Recovery – Individual Assistance (IA).** Also implemented jointly immediately following a major disaster declaration for events that impact citizens, the IA program provides funds for temporary housing, basic housing repairs, and replacement of essential household items. Contact VDEM for additional information and check FEMA's website at **http://www.fema.gov/R-N-R/iNassist.htm**.
- **Pre-Disaster Mitigation.** In the late 1990s, FEMA's *Project Impact* initiative was created to promote the concept of disaster resistant communities through public-private partnerships. The program was eliminated following the Stafford Act revision in 2000. This law created the requirement to develop all-hazard mitigation plans. The Pre-disaster Mitigation Program was created to fund common-sense, damage-reduction approaches, based on planning developed with three principles: (1) preventive actions must be decided at the local level; (2) private sector participation is vital; and (3) long-term efforts and investments in prevention measures are essential. Projects identified in the Structural Mitigation goal section of the plan will pursue PDM funding as FEMA releases Requests for Proposals for this program. Local governments are currently preparing local hazard mitigation plans that will allow them to compete for Pre-Disaster Mitigation funds once their local plan is approved.
- **Flood Mitigation Assistance Program (FMAP).** This grant program is intentionally focused on those properties that, if mitigated, will benefit to the National Flood Insurance Program and its policyholders. For the most part, the projects acquire, elevate or relocate residential buildings that have a history of repetitive claims against the NFIP. All projects, including measures other than acquisition and elevation, must be cost effective and not have adverse environmental impacts. Localities wishing to apply for these funds must have an approved Flood Mitigation Assistance Plan or All-Hazards Mitigation Plan. This funding source will be pursued for local structural mitigation projects as local DMA plans are approved. Additional information is available from FEMA's website or the Department of Emergency Management.
- **National Flood Insurance Program (NFIP).** The NFIP offers flood insurance to residents who reside in local jurisdictions that adopt and enforce certain provisions that will help to minimize future flood losses. The measures apply to all activities proposed within special flood hazard areas that are designated on maps provided by FEMA. All development must be designed and constructed to withstand damage (from water and wind-related hazards) and must not create

any adverse impacts on other properties. The single most effective measure (other than build away from flood-prone areas) is to elevate buildings above the base flood elevation. Additional information is available through DCR or on FEMA's website at **www.fema.gov/nfip**.

- **Map Modernization Program.** As part of the NFIP, FEMA oversees the development of flood hazard maps. Flood Insurance Rate Maps (FIRM) are used by local jurisdictions to regulate development. Projects intended to reduce flood damage generally are designed using the flood hazard information show on the maps and contained in accompanying engineering studies. Although nearly all flood-prone communities in the nation have been mapped, FEMA has a significant backlog of revisions and updates that need to be performed on an ongoing basis. The Commonwealth is currently revising maps through a national Map Modernization initiative. DCR completed its *Map Modernization Program Business Plan* in 2004 and has initiated implementation of this plan. The Commonwealth is participant in the Cooperative Technical Partners program, as are many Commonwealth local jurisdictions. Additional information is available through DCR.
- **Community Rating System (CRS).** The CRS is an incentive program that rewards communities that exceed NFIP regulations in ways that reduce damage and improve safety. The incentive is a reduction in the cost of flood insurance premiums. Communities must apply, annually certify their programs, and undergo periodic audits. In Virginia, 16 communities participate and provide discounts to their residents of 5% to 10%. Additional details are available from DCR.
- **National Earthquake Program.** The National Earthquake Program, coordinated by FEMA, has four basic goals directly related to the mitigation of seismic related hazards: (1) promote understanding of earthquakes and their effects; (2) work to better identify earthquake risk; (3) improve earthquake-resistant design and construction techniques; and (4) encourage the use of earthquake-safe policies and planning practices.
- **National Hurricane Program.** FEMA funding is provided to hurricane-prone states to establish, enhance and maintain basic levels of preparedness and mitigation capabilities, to promote effective mitigation measures, to conduct hazard identification and evacuation studies, to conduct post-storm analyses of mitigation measures, to conduct training, and to promote public awareness and education of hurricane safety and preparedness. The Commonwealth's participation is coordinated by a hurricane planner within VDEM.
- **National Dam Safety Program.** FEMA coordinates the National Dam Safety Program among federal agencies and state partners. In addition to maintaining a dam inventory, encouraging research, and promoting the implementation of state programs, the program also provides training and funds. Virginia's participation is coordinated by the Division of Dam Safety and Floodplain Management at DCR.
- **Hazards U.S. (HAZUS).** HAZUS is a computer program that utilizes a set of Geographic Information System (GIS)-based mapping tools that can help to estimate losses associated with earthquakes, floods, and wind. Developed in partnership with the National Institutes for Building Safety, HAZUS can be used to model event scenarios that are useful to compare risks between regions as well as to evaluate the effects of certain mitigation measures. Each state receives a copy of the software and certain baseline data. Recent improvements have been made in the quality of data that characterize building types and locations, significantly improving the analysis results.

U.S. Department of Housing and Urban Development (HUD). HUD programs are administered through the Virginia Department of Housing and Community Development and offer several programs that support local efforts to address hazards and to implement mitigation measures. The following are some of the more active programs used to minimize flood hazards:

- **Community Development Block Grant (CDBG).** CDBG funds are available to support activities that meet one of the three National Objectives criteria established by HUD:
  - benefit low and moderate income persons;
  - prevent or eliminate slum and blight conditions; or
  - meet other community development needs having a particularly urgency because existing conditions pose a serious and immediate threat to the health and welfare of the community, and where other financial resources are not available.
- **HOME Housing Partnerships Program.** HOME program funds give communities the flexibility to undertake a broad range of affordable housing activities, including the acquisition of property, construction of new housing for rent or homeownership, rehabilitation of rental or owner-occupied housing, improvement of sites or demolition of dilapidated homes, relocation costs for households displaced by HOME program activities, financial assistance to low-income homeowners and new homebuyers, and tenant-based rental assistance for low-income renters. The Virginia Department of Housing and Community Development coordinates the HOME program.

U.S. Department of Commerce, Economic Development Administration (EDA). EDA supports economic recovery strategies, in part by providing cost-shared funds for planning and technical assistance, emergency infrastructure grants, construction grants and a Revolving Loan Fund to assist communities and quasi-public entities such as local development corporations and public or private non-profit organizations. EDA funds have been used to retrofit or relocate public water supply or wastewater treatment facilities. After disasters, some communities use EDA long-term recovery funding to help businesses move to safer locations.

U.S. Army Corps of Engineers. In addition to managing several large dams, levee protection projects and beach nourishment projects, the Corps supports state and local floodplain management and mitigation through the following:

- **Floodplain Management Services (FPMS).** Under FPMS, the Corps provides a full range of technical services and planning guidance support for state and local efforts. The same services are available to non-governmental entities, including individuals, on a reimbursable basis. The Corps can provide information on flooding, estimates of potential flood losses, and guidance for managing flood hazard areas. Under FPMS, the Corps investigates methods to prevent and reduce flood damage, including retrofit and other flood proofing methods.
- **Planning Assistance to States (Section 22).** Assistance and planning guidance to state, regional and local governments is provided on a cost-shared basis and can address a variety of water resources issues, including floodplain management, flood damage reduction, dam safety, water supply, water quality, coastal zone management, wetlands management and environmental conservation and preservation.
- **Hurricane Evacuation Studies.** Coordinated with FEMA and the National Weather Service (NWS), the Corps leads development of regional evacuation

studies based on predicted storm conditions developed by the NWS. Virginia's involvement is coordinated by VDEM and resulted in the *Virginia Hurricane Evacuation Study*

(VDEM, 1992). Updated evacuation studies for Virginia's Tidewater region and the rest of the Chesapeake Bay are expected in the next few years.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). The NRCS is dedicated to the conservation of soil and water and related resources. Technical assistance is provided to individuals, groups, organizations and government agencies through conservation districts. Virginia's Departments of Agriculture and Consumer Services and Conservation and Recreation are the state's contacts for NRCS programs:

- Under authority in Public Law 566, numerous flood reduction projects have been built to address problems in small watersheds. NRCS supports river basin and watershed planning initiatives undertaken by local jurisdictions.
- The Emergency Watershed Protection Program can provide technical and financial assistance to communities to repair and restore clogged and damaged waterways to pre-disaster conditions.
- The Emergency Conservation Program, coordinated with the USDA Farm Services Agency, provides technical assistance to the agricultural community after disasters.
- Wetland Reserve Program provides technical and financial support to help landowners implement wetland restoration, conservation and wildlife practices.

U.S. Department of Agriculture, Other Programs. USDA has a number of loan and grant programs that may support mitigation initiatives and post-disaster recovery. Additional information may be obtained from the U.S. Department of Agriculture or on-line at **www.usda.gov**:

- Rural Business-Cooperative Development Service Business and Industrial Loans help create jobs and stimulate rural economies by backing rural businesses.
- Rural Housing Service Community Facilities Loans and Grants can be used to construct, enlarge or improve community services for health care, public safety, and public services.
- Water and Waste Grants and Loans are used to develop, replace, or repair water and waste disposal (including storm drainage) systems in rural areas and small towns.
- Farm Service Agency Emergency Conservation Program assistance can be used to rehabilitate certain farmland damaged by floods or other disasters.
- Farm Service Agency Tree Assistance provides cost-shared payments to orchardists, maple sugar producers, greenhouse operators and vineyard growers who incur losses due to damaging weather.
- Federal Multi-Peril Crop Insurance policies insure against losses due to natural causes such as drought, excessive moisture, hail, wind, frost, insects and disease.
- Non-insured Crop Disaster Assistance Program helps growers of crops for which crop insurance is not available.
- Farm Service Agency Flood Risk Reduction allows farmers to voluntarily enter into contracts to receive payments on lands with high flood potential in return for foregoing certain USDA program benefits.

- Conservation Reserve Program helps landowners conserve and improve soil, water and wildlife resources by converting environmentally sensitive acreage to long-term, approved cover.
- Emergency Conserve Program provides funding to address new conservation problems created by disaster that, if not treated, would impair or endanger the land. Funds can be used to rehabilitate farmland damaged by wind erosion, floods, hurricanes, or other natural disasters and to carry out water conservation measures during drought.

U.S. Small Business Administration (SBA). The SBA has the authority to declare disaster areas based on the number of homes and businesses that are affected, even if the event does not warrant a declaration by the President. SBA provides low-interest loans, and can authorize loan amounts up to 20% above the costs of restoration if the applicant agrees to implement mitigation measures. Individuals and businesses can use SBA funds to pay for the non-federal share of HMGP and FMA projects to elevate-in-place, relocate, or flood-proof buildings in flood hazard areas. The Virginia Department of Business Assistance is one source of information, and the SBA is on-line at **www.sba.gov**:

- **SBA Business Physical Damage Loan Program.** Available to help businesses and nonprofit organizations repair or replace uninsured damaged property such as real estate, machinery and equipment, inventory, and supplies. SBA requires borrowers to obtain and maintain appropriate insurance, especially if located in a flood hazard area.
- **SBA Economic Injury Disaster Loan.** These loans of "last resort" provide working capital to small businesses and small agricultural cooperatives to help them through the recovery period.